



Combining JPL/GPS and DORIS/JPL
weekly free-network solutions
for geodetic purposes

Preliminary answers on local ties accuracy and
reference frame stability

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SUMMARY

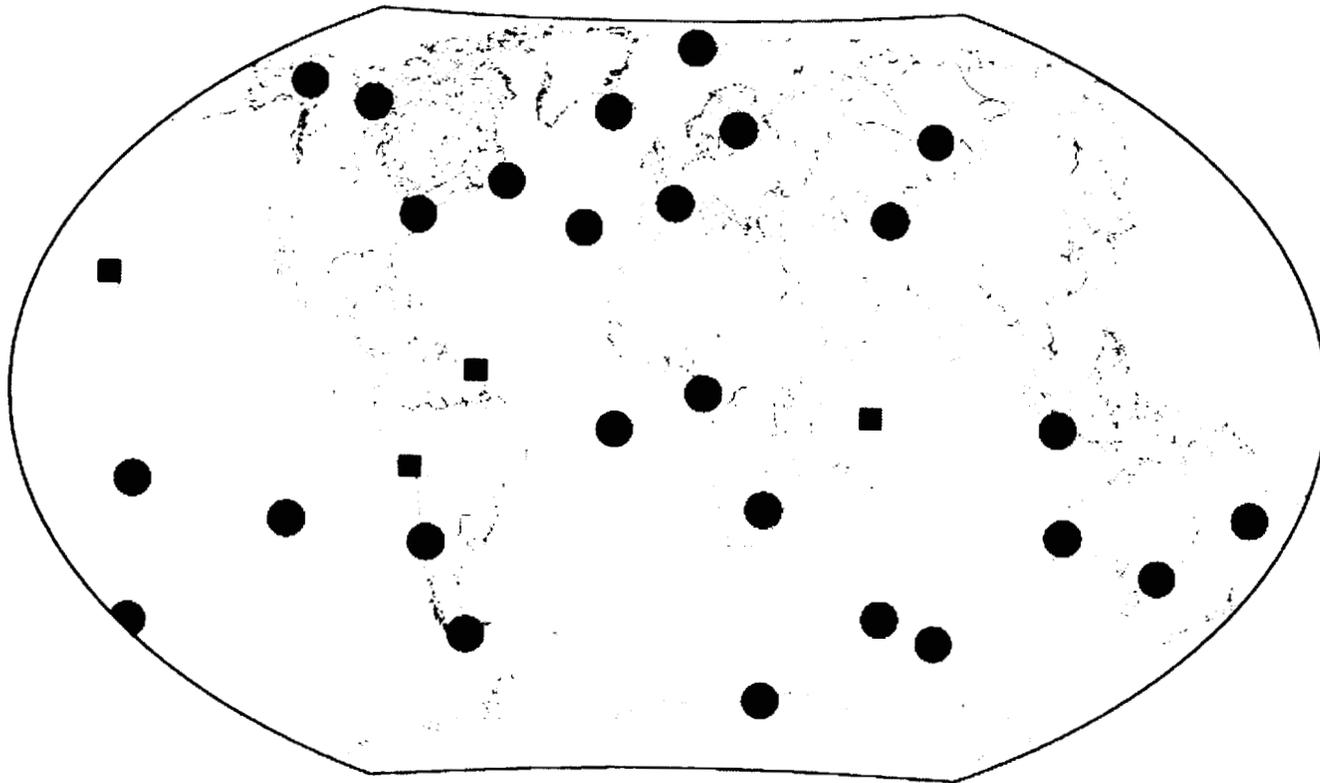
- Why doing a GPS/JPL+DORIS/JPL solution?
- Local ties results
 - Accuracy, reliability
- Reference frame issues
 - Geocenter and scale
- Conclusions



Why doing a JPL/GPS+JPL/DORIS combination?

- Possible common systematic errors
 - Same modeling (Gipsy/Oasis software)
 - Same estimation strategy (free-network)
 - Good geographical distribution
 - Continuous regular processing
- An important step before doing other combinations
 - Intra-technique (GPS+GPS)
 - Inter-technique (GPS+VLBI+SLR+DORIS)

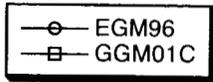
Current GPS/DORIS collocations



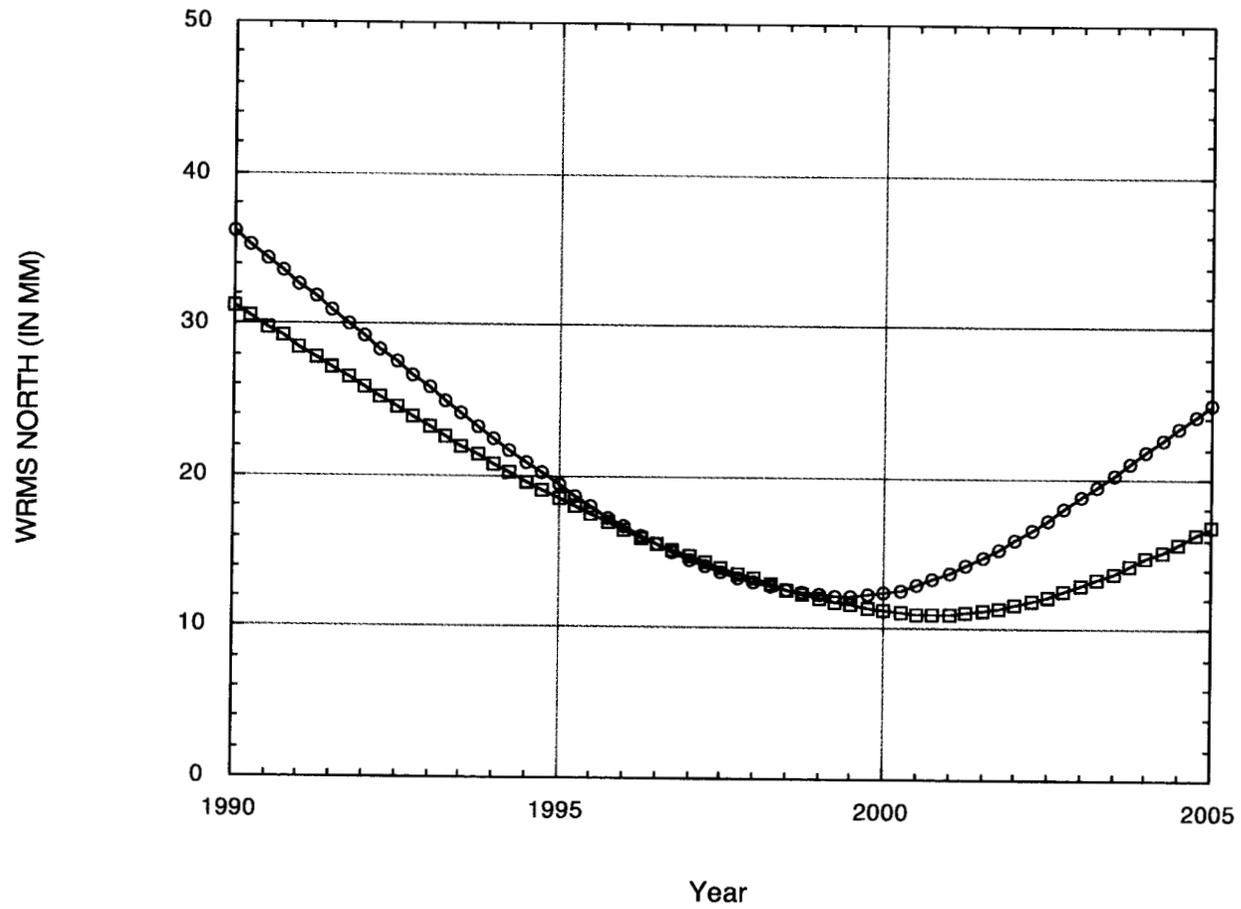


Problems found

- Results
 - Most local tie information are available
 - Most are precisely surveyed
- Problems found
 - Some stations are very far apart (>10 km)
 - Some local tie are not sufficiently accurate (> 6 mm)
 - Some local ties were incorrect (Punta Delgada -8 cm V)
 - GPS heigth require documentation

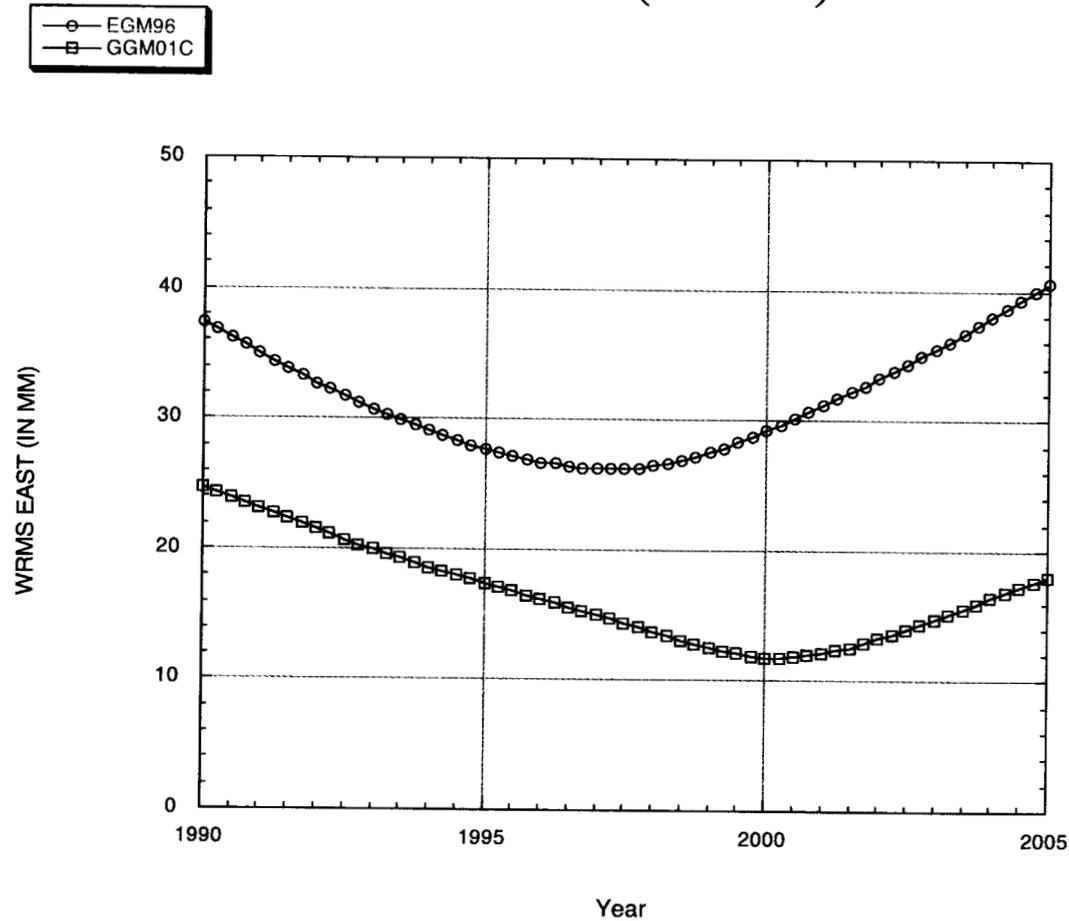


North (in mm)





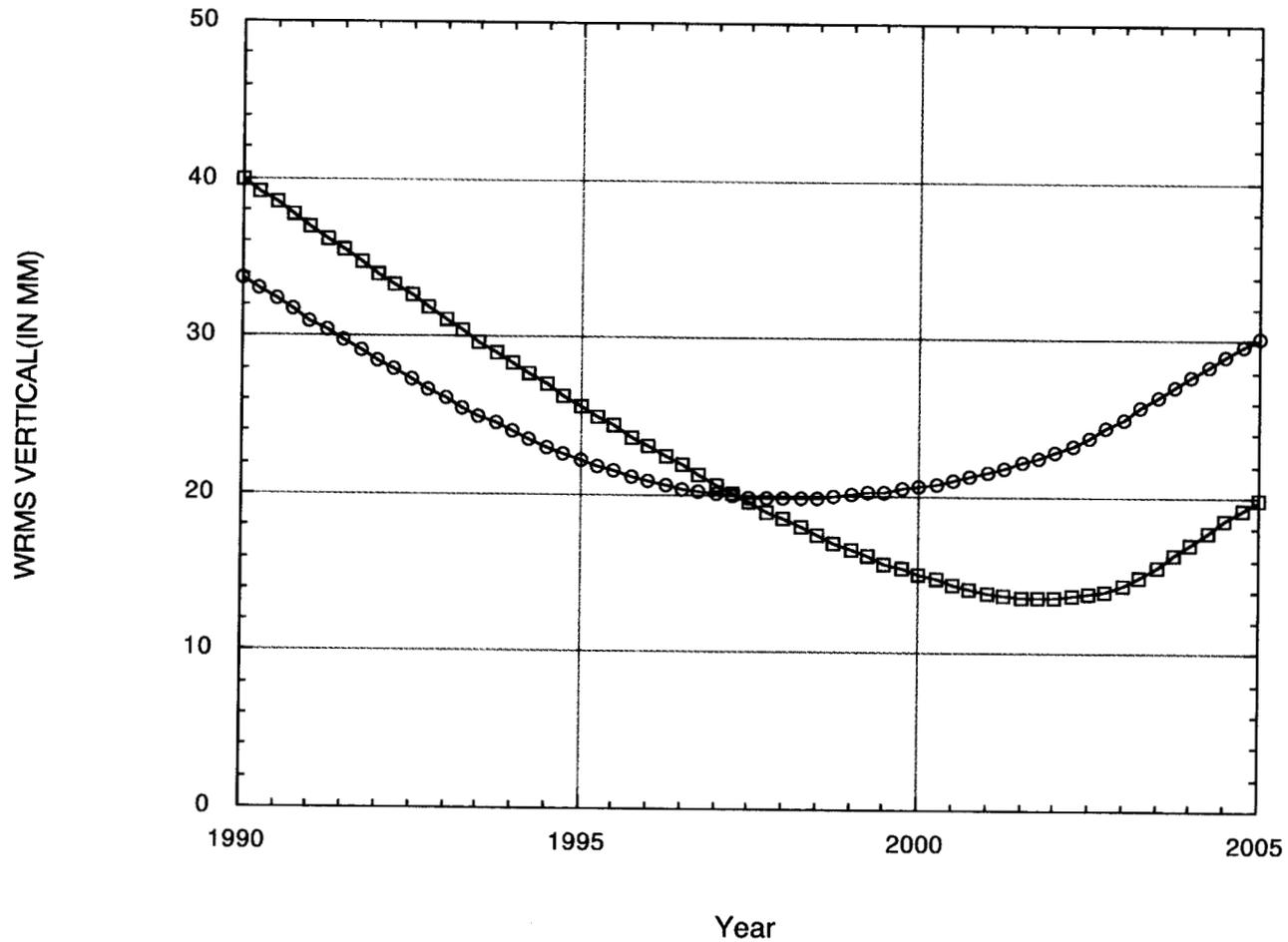
East (in mm)

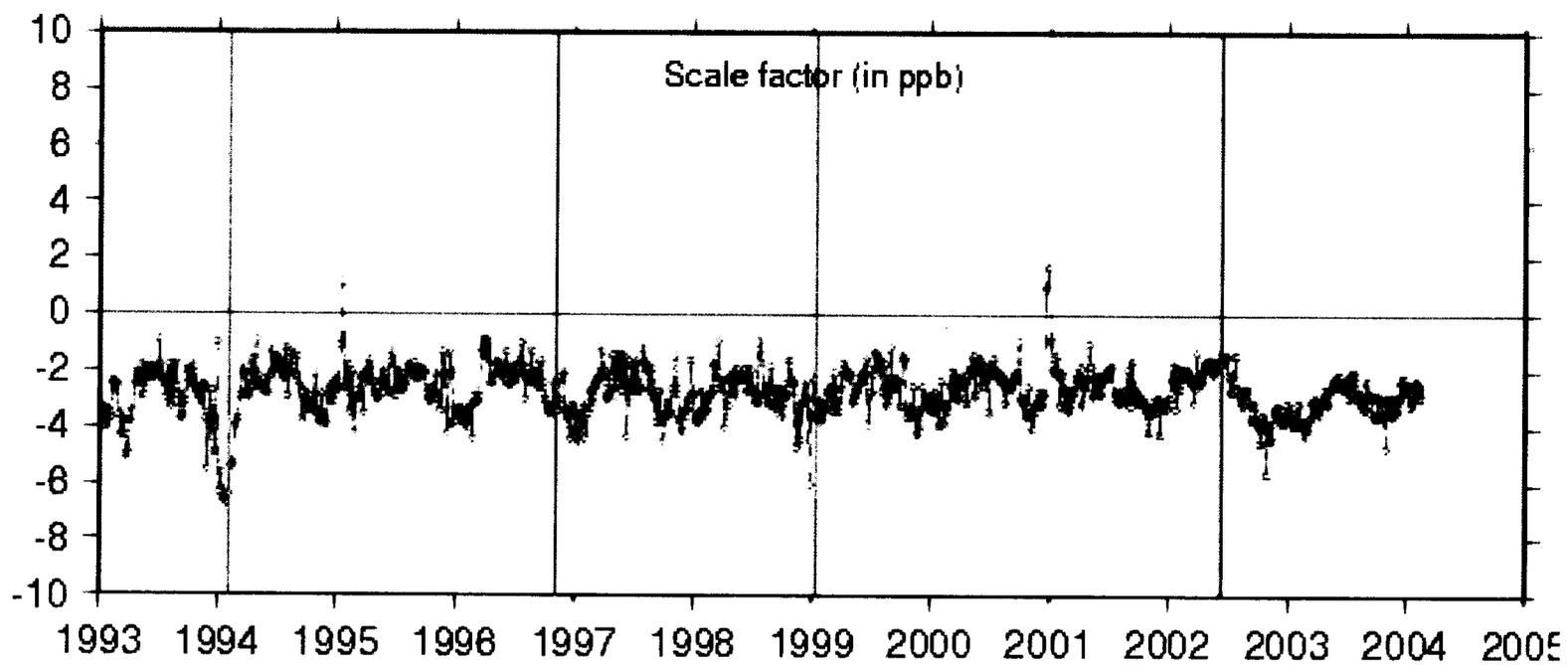


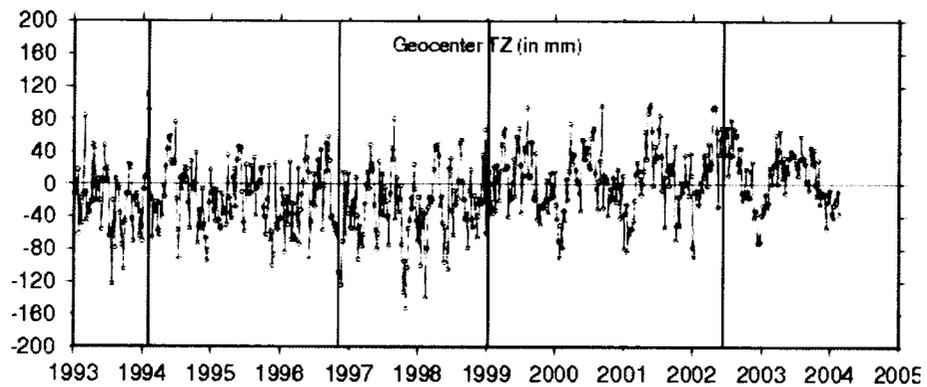
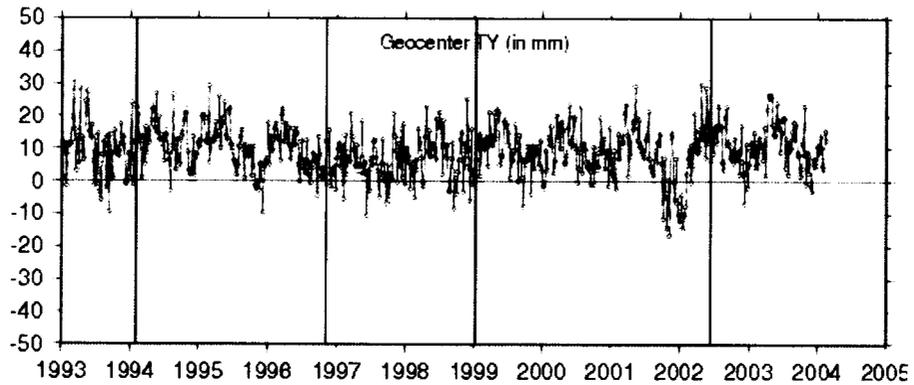
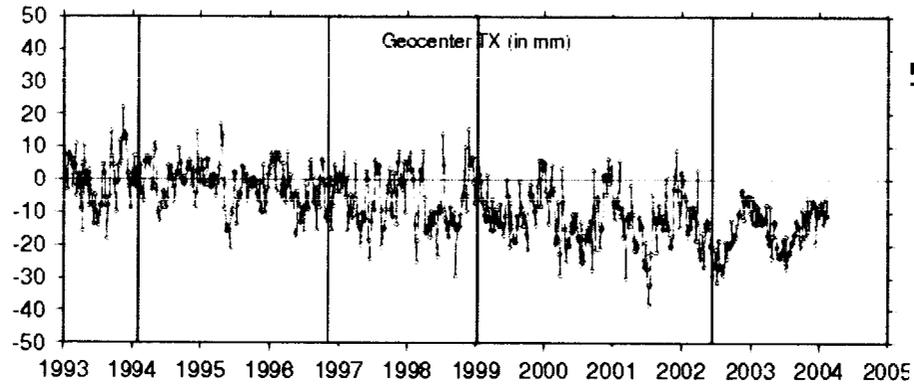


○ EGM96
□ GGM01C

Vertical (in mm)







Nice, April 2004



CONCLUSIONS

- GPS/DORIS solution obtained
 - Station (X,Y,Z) + (EOP XP,YP)
 - Some local ties errors identified and confirmed
 - Current accuracy assessment
 - Better results with GGM01C (GRACE)
- Future work to do. Present questions.
 - Why is the DORIS solution not improved from GPS/EOP?
 - DORIS systematic scale factor = 2.5 ppb = 16 mm